CLAIMS

Sub A24

1. An information recording apparatus comprising:

a probe for producing or scattering near field light;

a probe access means for causing a tip of the probe to access onto a recording medium;

a probe scanning means for scanning the tip of the probe over the recording medium; and

a heat radiating means for radiating heat through the tip of the probe;

wherein the recording medium is provided on the surface with a thin film that varies in physical properties due to heating the surface.

2. An information recording apparatus according to claim 1, wherein the heat radiating means is an electric heating element.

3. An information recording apparatus according to claim 1, wherein the heat radiating means is a laser light source.

4. An information recording apparatus according to claim 3, wherein the probe is provided with a microscopic aperture at a tip so that laser light from the laser light source can be introduced toward the microscopic aperture.

5. An information recording apparatus according to

claim 5, wherein the microscopic aperture is provided with a metal film on the surface of the probe except for the tip thereof.

6. An information recording apparatus according to any one of claims 1 to 5, further including auxiliary heat radiating means to heat up the recording medium.

7. An information recording means comprising:

a probe having a sharpened tip;

a probe access means for causing the tip of the probe to access onto a recording medium;

a probe scanning means for scanning the tip of the probe over the recording medium; and

an illumination light source for illuminating a backside of the recording medium and producing near field light on the surface of the recording medium;

wherein the recording medium is provided on the surface with a thin film that varies in physical properties due to heating the surface.

8. An information recording apparatus according to claim 7, wherein the illumination light source illuminates the surface of the recording medium and producing near field light on the surface of the recording medium.

9. A method of recording information comprising:

a probe access process of causing a tip of a probe for producing or scattering near field light to access

onto a recording medium;

a probe scanning process of scanning the tip of the probe to a desired position on the recording medium; and

a heat recording process of radiating heat energy through the tip of the probe to locally heating up the recording medium and recording information on the recording medium.

10. A method of recording information according to claim 9, further comprising an auxiliary heating process of auxiliary heating the recording medium.

11. A method of recording information including:

an illumination process of illuminating the surface of a recording medium and producing near field light on the recording medium;

a probe access process of causing a sharpened tip of a probe to access onto the recording medium and recording information on the recording medium by locally intensified energy caused due to insertion of the tip of the probe in a region of the near field light; and

a probe scanning process of scanning the tip of the probe to a desired position on the recording medium.

12. A method of recording information according to claim 11, wherein the illumination process is to illuminate a backside of the recording medium and producing near field light on the recording medium.